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PRIMARY EXAMINER
ART UNIT 1308



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Delsalle et al.

Serial No. 08/810,834

Filed March 4, 1997

For: **METHOD AND INSTALLATION FOR
TREATING AN UNTREATED FLOW BY
SEDIMENTATION AFTER BALLASTING
WITH FINE SAND**

Attorney's Docket No. P-4013.002

Thomas G. Wyse
Senior Examiner
Art Unit 1308

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GROUP 130

Raleigh, North Carolina
September 3, 1997

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

In response to the Official Office action of June 23, 1997, relating to the above-identified U.S. Patent Application, the Patent and Trademark Office is respectfully requested to reconsider the present application.

First, an interview conducted with the Examiner on August 28, 1997 is acknowledged. During the course of the interview, counsel for Applicant and Mr. Wyse discussed the claims in the present application, and the von Hagel reference.

At present, claims 1-17 stand rejected as being obvious in light of the von Hagel reference, U.S. Patent No. 4,388,195. As discussed in the interview with the Examiner, the von Hagel reference, does not disclose all of the limitations of claim 1, the only independent claim in the case, and does not suggest or render obvious the claimed invention in this case. A review of claim 1 shows that the same calls for "adding insoluble granular material having a density greater than the influent liquid". For reference, Applicants' specification describes the granular material as "preferably sand (easy to obtain at low cost) with a mean particle size between about 20 μ m and

300 μm , preferably between 80 μm and 200 μm . Page 17, lines 12-14 of the specification. That is to be contrasted with the process of von Hagel where no granular material is disclosed or added to the process. Because von Hagel does not teach a sedimentation process wherein granular material is added for the purpose of forming the flocs, von Hagel cannot render the present invention obvious.

In addition, the process of the present invention entails directing the settled sludge from the sedimentation tank to a separation zone and separating the granular insoluble material from the sludge and recycling the granular insoluble material back through the sedimentation process. von Hagel does not teach or suggest this feature of Applicants' invention. In fact, the von Hagel process is in reality a sludge contact process. That means, that the sludge itself is continuously recycled through the process. That differs markedly from the present invention where the sludge is actually separated from the granular insoluble material and not recycled through the process while the separated insoluble granular material is actually recycled back through the process. Thus, fundamentally, the processes defined in the present invention and in the von Hagel references are fundamentally different. In fact, von Hagel states that the recycling of the sludge is actually essential to his process. For example, note col.

3, lines 15-19. There, von Hagel states:

"It is essential for the effective operation of the process, contrary to previous known processes, that the sludge which is already been concentrated is returned to the reaction areas of Phase II and/or III as contact sludge."

Thus, it is clear that the process of von Hagel absolutely depends upon sludge contact and the actual recycling of sludge through the sedimentation process. Again, that is to be contrasted with Applicant's invention where the granular insoluble material is what is actually recycled back through the process.

Relying on von Hagel, the Patent and Trademark Office asserts that modifying von Hagel by 1) eliminating the separator plates and 2) including the claimed mirror rate limitation would have been obvious to one of ordinary skill in the art because neither change has been shown to be results-effective. It is respectfully submitted that both of these changes are results-effective.

Taking them in inverse order, the mirror rate is by definition results-effective. The mirror rate (m/hr) is the flow rate in m^3/hr divided by the surface area of the sedimentation area in m^2 . Thus, the mirror rate is in effect a measurement of the speed of the sedimentation for a given size sedimentation area. Clearly, the speed at which a process can be accomplished is results-effective. Further, the mirror rate limitation of claim 1 is tied to an output quality level of "producing a clarified effluent having at least a 60% reduction in suspended solids relative to the influent liquid." Most processes can be speeded up with a resulting degradation in quality. Claim 1 is limited to the method of removing solids having a minimum "speed" while maintaining a specified minimum quality level. This higher "speed" results in a more economical process, as pointed out in the specification. (See, e.g., page 6, lines 1-7 ("more economical and simpler than existing processes"), page 6, lines 8-12 ("which is very much greater than the speeds at most around ten meters per hour obtained with [prior art]"). Accordingly, it is respectfully submitted that the mirror rate limitation is results-effective. As such, it can not be obvious from von Hagel to provide the claimed sedimentation process with such a mirror rate.

Turning now to the separator plates, the specification points out in several locations where the lack of separator plates is results-effective. First, page 5, lines 20-22 points out that "separator plates represent a non-negligible element of the cost of installation, both through their inherent cost and through the resulting installation

and cleaning constraints." Page 20, lines 9-12 point out that eliminating the separator plates "eliminates the installation constraints associated with the separator plates. For example, a round shape can be chosen for the sedimentation chambers." Perhaps more importantly, the specification clearly points out that the result of high mirror rates without separator plates is non-obvious. See, e.g., page 5, lines 16-19 ("all the recent methods described in the literature, ..., are based on the use of separator plates for sedimentation wherever mirror settling speeds in excess of 15 m/h, for example, are required"); page 6, lines 1-7 ("In a manner that the person skilled in the art will find surprising and unexpected, [Applicant's method] can yield high settling speeds despite the absence of separator plates"); page 12, line 23 - page 13, line 8 ("There was previously nothing to suggest the possibility of obtaining such settling speeds without using [separator plates] . . . obtaining high settlement speeds [] has systematically been attempted until now by combining the use of separator plates with a particular way of preparing the floc.").

Even the von Hagel patent shows that separator plates were thought important.

At col. 3, lines 58-66, von Hagel states when discussing the presence of separator plates (referred to as "parallel plate and/or tube settler system") that "only in this way [will flocs] be separated readily and effectively from the clarified water." Later, the separator plates are described as being necessary for proper operation of the von Hagel method. '195 patent, col. 5, lines 55-64. Note also that U.S. Pat. Nos. 4,290,898 and 4,141,970, also to von Hagel, likewise disclose the use of separator plates.

The high surface loading rate referred to in von Hagel is the same as the mirror rate discussed in the present application. It is clear that the high surface loading rate of von Hagel is linked directly to the presence of separator plates. See the discussion in von Hagel at col. 3, lines 58-60 and col. 4, lines 2-4. There, von Hagel clearly states

that the high loading surface rate of 30-52 m³/m²·hr is attributable to the presence of separator plates. Thus, there is no teaching or suggestion in von Hagel that these types of results could, under any circumstances, be achieved with the absence of separator plates.

In light of the above, separator plates are clearly a results-effective variable. As such, their elimination in Applicant's invention would not have been obvious. Further, looking at the invention as a whole, the elimination of the separator plates while maintaining mirror rates above 15 m/hr and still producing clarified effluent with at least a 60% reduction in suspended solids is not obvious in view of von Hagel.

Accordingly, it is respectfully requested that the § 103 rejection for claim 1 be withdrawn. Further, because claims 2-17 depend from claim 1, it is respectfully requested that the § 103 rejection be withdrawn for these claims as well.

As the Patent Office appreciates, this application is a division of U.S. Patent Application Serial No. 08/431,833 (the "parent" application). In the parent application, system claims were presented that parallel the method claims now before the Patent Office. Applicants conducted an interview with the Examiner, Mr. Wyse, on February 3, 1997 with respect to the parent application. During the course of this interview, the Examiner suggested that the system claims of the parent application would be best presented in the form of method claims. In fact, the Examiner suggested during the course of that interview that based on the prior art of record in the parent case that if the system claims were presented in the form of method claims that such method claims would define over the prior art and would indeed be allowable. Therefore, in view of this interview, many of the system claims in the parent case were canceled without prejudice, and as suggested by the Examiner, these system claims were presented in the form of method claims in the present divisional

patent application. It is believed that a review of the parent application including the prior art that was made of record therein and Applicants' arguments will clearly point to the conclusion that the method claims presented herein define a new and non-obvious process over the prior art.

Respectfully submitted,

RHODES, COATS & BENNETT, L.L.P

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February 26, 1998

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Assistant Commissioner of Patents and Trademarks
Washington, D.C. 20231

RE: Inventors: **Delsalle et al.**
Serial No. 08/810,834
Filed March 4, 1997
Attorney's Docket No. P-4013.002
For: **METHOD AND INSTALLATION FOR TREATING AN UNTREATED
FLOW BY SEDIMENTATION AFTER BALLASTING WITH FINE SAND**

Dear Sir:

On Tuesday, February 24, 1998, our office contacted Group 130 to inquire as to the status of the above-identified U.S. Patent application. In response to that inquiry, the receptionist indicated that the application had become abandoned for failure to respond to the last Official Office Action dated June 23, 1997.¹

The Patent Office is advised that a Response was indeed prepared and filed which did respond to the Official office Action of June 23, 1997. In fact, the Response was hand-carried to Group 130 and was stamped in as filed. Attached hereto is Exhibit 1 which is a copy of the Response that was hand-delivered and filed in the Patent Office on September 4, 1997. The Patent Office will note the date stamp of the Patent Office which states:

"Received 97 Sep-4 PM 1257 Group 130"

Also, on February 24, 1998, the undersigned had a telephone conference with Mr. Thomas G. Wyse, the Examiner in charge of this case. Mr. Wyse indicated to the undersigned that the Patent Office, in cases like this, will revive a case based on the

¹ The Patent Office is advised that our office has not received a Notice of Abandonment. It is possible that the Notice of Abandonment was sent to a firm that originally filed the parent application.

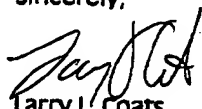
Letter to Assistant Commissioner of Patents and Trademarks
February 26, 1998
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Applicant submitting evidence in a letter form that the Response was indeed hand-delivered and filed with the Patent Office. Accordingly, the purpose of this letter is to request the Patent Office to reinstate this application as soon as possible and to pass the same on to Mr. Wyse for action.

Finally, for the record, a second copy of the Response filed in the Patent Office on September 4, 1997 is enclosed herewith for the purpose of being placed in the file as the record copy of the Applicant's Response.

The Patent Office is respectfully requested to telephone the undersigned as soon as the above application has been reinstated. The Applicants in this case have been inquiring into the status of this case for some time but the undersigned was not aware that the Patent Office had abandoned the application. Therefore, the expeditious efforts of the Patent Office in reinstating this application will be greatly appreciated.

Sincerely,



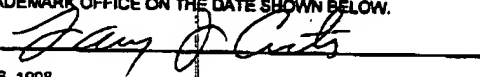
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P-4013.002

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